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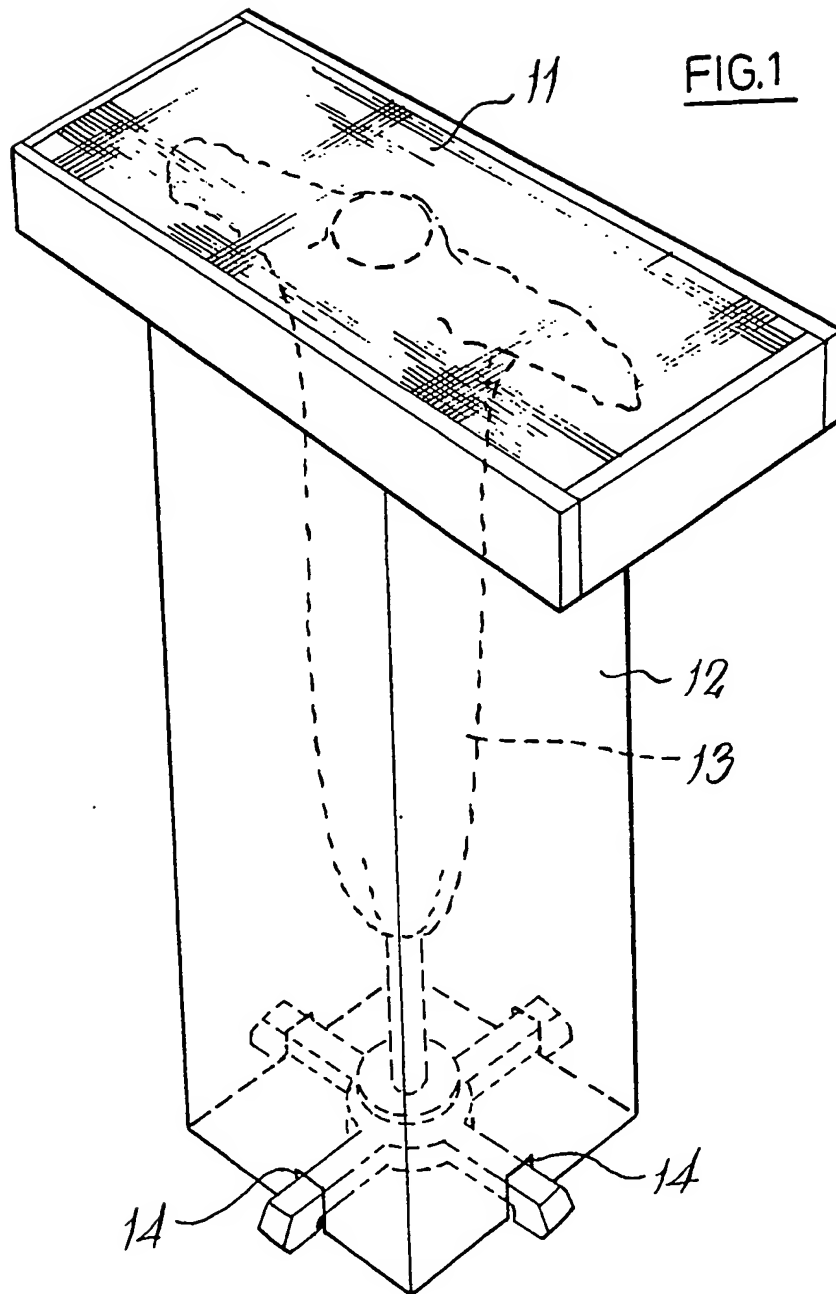
(54) **Method and apparatus for finishing fabrics**

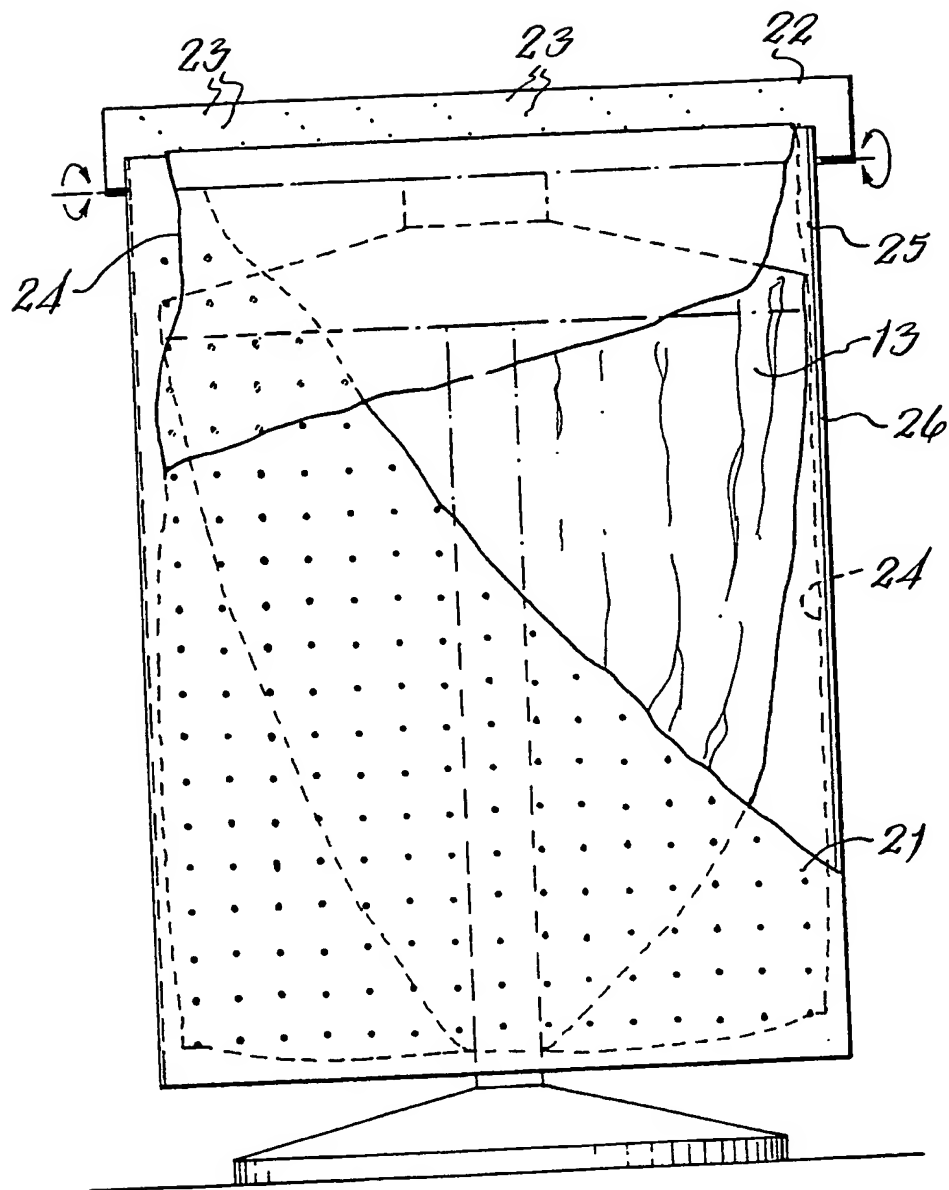
(57) Lengths of fabric, e.g. curtains, are smoothed, for instance after a dry cleaning process, by being passed over a horizontal or substantially horizontal permeable support through which first steam and then hot air are supplied to said fabric lengths. The support can be the top of a box that fits over a commercially available steaming dummy.

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The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

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FIG. 2

SPECIFICATION

Method and apparatus for finishing fabrics

5 This invention relates to finishing lengths of fabric, such for example as curtains, for instance after a dry cleaning process.

Conventionally, dry cleaned garments are placed over a steaming dummy in order to remove wrinkles and folds before being pressed on a Hoffmann. The steaming dummy comprises a stand having shoulders over which the garment—a jacket, dress or the like—can be draped, the stand being loosely covered by a nylon bag which expands when inflated by an admission first of steam with or without hot air then, or instead, of hot air on its own to dry off the garment after the steam step.

20 Such steaming dummies are, of course, quite unsuitable for fabric lengths which do not readily drape over the dummy in such a way that wrinkles and folds can be taken out.

Fabric lengths such as curtains, therefore, are taken straight to the Hoffmann, with the added difficulty of manually removing creases and wrinkles before bringing down the top press member and admitting steam to the buck—without this careful treatment there would of course be a high risk of pressing in any wrinkles or folds in the fabric.

The present invention provides a method and apparatus for finishing such fabric lengths which does not have this disadvantage.

35 The invention comprises a method for finishing or smoothing lengths of fabric comprising supporting the fabric against an extended permeable member so as substantially to cover up said member and supplying steam and hot air to said fabric lengths through said member.

It is usually preferred to supply steam first and then air.

45 The fabric may be passed over a horizontal or substantially horizontal permeable support, and the fabric may be passed, guided manually, to and fro over the support until smoothed. It would clearly be possible to provide an automatic arrangement which would pass and re-pass the fabric over the support.

50 The said permeable member may, however, be vertical or substantially vertical, the fabric being hung against said member until smoothed.

55 The invention also comprises apparatus for finishing or smoothing lengths of fabric comprising an extended permeable member against which the fabric can be supported and means supplying steam and/or hot air through said permeable member to the fabric thereagainst.

60 Said means supplying steam and/or hot air may comprise a steaming dummy, such as will ordinarily be possessed by dry cleaning

establishments.

In one arrangement, said extended permeable member may comprise a horizontal or substantially horizontal permeable support.

70 Such support may comprise a box which can be placed over a steaming dummy and having a perforate top, e.g. of mesh or perforated sheet, and means to direct steam and hot air from the steaming dummy upwardly into said box and through said perforate top.

75 Said extended perforate member may otherwise be a vertically or substantially vertically disposable perforate plate with support means to hold a fabric hanging against said plate.

80 Said support means may comprise clamp means, which may comprise needles to pierce and hold said fabric.

Said elongate perforate member may comprise a part of a chest arranged to be closed around a steaming dummy so as to preclude or substantially preclude steam and air emerging except through said permeable member.

Embodiments of apparatus and a method for finishing lengths of fabric according to the invention will now be described with reference to the accompanying drawing, in which:

Figure 1 is a part cut-away perspective view of one embodiment, and

95 Figure 2 is a part cut-away front elevation of another embodiment.

The apparatus illustrated in Figs. 1 and 2 comprise a permeable support 11 in the form of a grid or grating or a mesh screen, which is fixed into or made integrally with a box or chest 12 which can be moulded or assembled from fibreglass or like reinforced resinous material or from metal and which can be placed on a steaming dummy 13 of a commercially available type such as is used in dry cleaning establishments.

In the embodiment illustrated in Fig. 1, the box 12 either reaches down to the ground or rests on the dummy 13 in such a way that the support 11 is horizontal or substantially so. If the box 12 stops short of the ground it is preferred to make some kind of sealing arrangement below so that steam and hot air mostly has to pass through the support 11.

115 If the box 12 reaches the ground it is preferred that it has locating slots 14 to fit over a standard swivel base for stability.

In use a length of fabric such as a curtain is passed to and fro, for preference, so as to subject all parts thereof to the steam and/or hot air emerging from the support 11 during the finishing operation, and again if necessary to be dried off by the hot air when the dummy is blowing hot air after steam.

120 It is found that in most cases this is the only finishing treatment needed; further use of the conventional Hoffman is not only unnecessary for most fabrics, but even detrimental to the appearance of some fabrics such as vel-

vets.

Of course, instead of manually moving the fabric to and fro over the support 11, an automatic arrangement could be provided to
5 guide the fabric thereover either to replace or to assist in the manual operation.

The box 12 is preferably made light in weight so that it is on the one hand inexpensive and on the other easy to lift on and off
10 the dummy 13 so that the dummy 13 can be readily adapted for treating jackets, dresses and the like and for treating curtains and other lengths of fabric.

In the embodiment illustrated in Fig. 2, the extended permeable member comprises a vertically or substantially vertically disposed perforate plate 21 with support means 22 comprising a clamp member with needles 23 to pierce and hold the fabric 24 hanging against
15 the plate 21.

The plate 21 is hinged to a solid back plate 25 with a seal 26 along the separable edges of the plates 21 and 25, the whole forming a chest which can be closed around the steaming dummy 13 so that steam and/or hot air is forced to emerge through the permeable member, plate 21.

The perforate plate 21 and the back plate 28 can be formed of sheet steel.

In use, the fabric length—which may be a curtain is clamped in the support means 22 the first steam and then hot air admitted to the steaming dummy so as to flow at usual pressures (about 2 atmospheres) through the
30 perforate plate 21 until the fabric is smoothed. Whereas, in the embodiment illustrated in Fig. 1, tension in the fabric as a result of the manual passing and re-passing of the fabric over the box 12, together with the steam and hot air treatment, effects the
40 smoothing of the fabric, and the raising of any nap thereon, in the embodiment of Fig. 2 it is the weight of the fabric itself which hangs vertically against the perforate plate 21 which, together with the steam and air, effects the
45 removal of wrinkles and nap raising.

The arrangement of Fig. 2 is advantageous where an abundance of labour is not available and on the grounds of taking up less space
50 and being easier to deploy and dismantle when the steaming dummy is to be made available for regular use.

CLAIMS

1. A method for finishing or smoothing lengths of fabric comprising supporting the fabric against an extended permeable member so as substantially to cover up said member and supplying steam and hot air to said fabric
60 lengths through said member.

2. A method according to claim 1, in which the fabric is passed over a horizontal or substantially horizontal permeable support.

3. A method according to claim 1, in
65 which the fabric is move to and fro over the

support until smoothed.

4. A method according to claim 1, in which said permeable member is vertical or substantially vertical and the fabric is hung
70 against said member until smoothed.

5. A method for smoothing lengths of fabric substantially as hereinbefore described with reference to the accompanying drawings.

6. Apparatus for finishing or smoothing
75 lengths of fabric comprising an extended permeable member against which the fabric can be supported and means supplying steam and/or hot air through said permeable member to the fabric thereagainst.

7. Apparatus according to claim 6, said means supplying steam and hot air comprising a steaming dummy.

8. Apparatus according to claim 6 or claim 7, said extended permeable member comprising a horizontal or substantially horizontal
85 permeable support.

9. Apparatus according to claim 8, said permeable support comprising a box which can be placed over a steaming dummy and having a perforate top and means to direct steam and hot air from the steaming dummy
90 upwardly into said box and through said perforate top.

10. Apparatus according to claim 6 or claim 7, said extended permeable member being a vertically or substantially vertically disposable perforate plate with support means to hold a fabric hanging against said plate.

11. Apparatus according to claim 10, said support means comprising clamp means.
100

12. Apparatus according to claim 11, said clamp means comprising needles to pierce and hold said fabric.

13. Apparatus according to any of claims 6 to 12, said elongate permeable member comprising part of a chest arranged to be closed around a steaming dummy so as to preclude or substantially preclude steam and air emerging except through said permeable
105 member.

14. Apparatus for smoothing lengths of fabric substantially as hereinbefore described with reference to the accompanying drawings.

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(54) **Clothes drying, dewrinkling and ironing cabinet**

(57) A clothes drying, dewrinkling and ironing cabinet which comprises a main enclosure (2) for housing clothes, access to said main enclosure (2) being by way of a front door (3), means (4) for drying and dewrinkling

the clothes in said enclosure (2) and control means for regulating said means (4), said cabinet also having an ironing board unit (6). This ironing board unit (6) is a folding one and is mounted on the inside of the door (3).

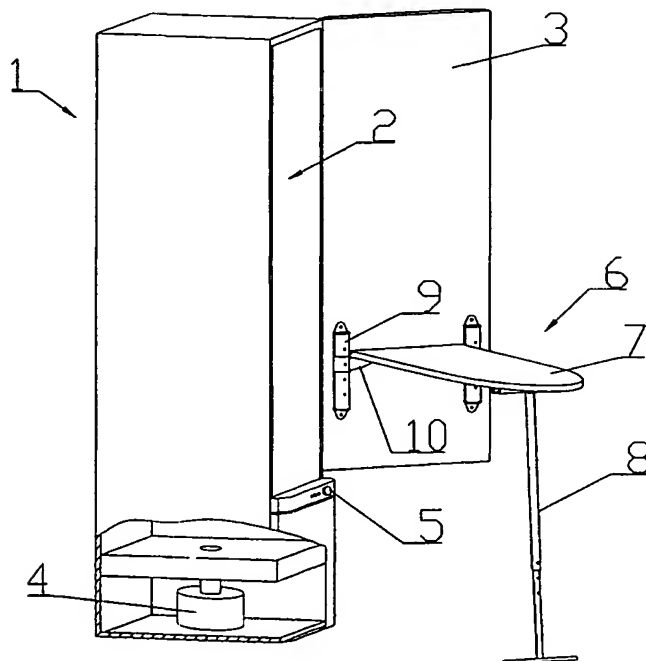


Fig. 1

Description

TECHNICAL FIELD

[0001] The present invention relates to clothes drying, dewrinkling and ironing systems, and more specifically to clothes drying, dewrinkling and ironing cabinets intended mainly for domestic use, as well as to devices relating to conventional ironing.

PRIOR ART

[0002] It is a proven fact that one of the most disagreeable household chores is the process that initiates when clean clothes (garments, sheets, etc.) are taken out of the washing machine and finishes when they are stowed away in the respective wardrobe duly ironed. This process includes such operations as hanging out the washing taken out of the washing machine, bringing it in when dry, organizing the ironing thereof, etc.

[0003] There have been many attempts to expedite and simplify this process, but no household domestic appliance has been developed to date offering a complete and final solution.

[0004] The Spanish patent document from the same applicant with the Application No. P200000597 discloses a cabinet for clothes drying and dewrinkling, as well as a method for carrying out said drying and dewrinkling. Said invention facilitates the task of ironing to a considerable extent, as the level of dewrinkling that is achieved is such that subsequent use of the iron is only necessary for a small number of garments and for only very localised parts thereof.

[0005] The fact however that it is still necessary to resort to conventional ironing (even though it is only for a few garments) means that the user cannot dispense with the ironing board and cannot avoid the problems stemming from the need to use the iron (take the ironing board out of the place where it is stored, set it up in a suitable place, take it down and stow it away again after use, etc.).

[0006] There are a wide variety of ironing board units. US4995681 describes a folding ironing board which is kept in a purpose built cabinet for its storage.

[0007] US5329860 discloses an ironing board unit that can be mounted on a door. The invention includes an upright member with a hook that is hung from the frame of the chosen door, a transverse member fixed to said upright member, an ironing board hingedly attached to said transverse member, and a leg hingedly attached to said ironing board.

DISCLOSURE OF THE INVENTION

[0008] The main object of the invention is to provide an household electrical appliance that offers a complete, global and integrated solution to the domestic chore that commences when clean clothes are taken out

of the washing machine and concludes when they are duly ironed and stowed away.

[0009] Said household electrical appliance is a clothes drying, dewrinkling and ironing cabinet that comprises a main enclosure for housing clothes, with access to said main enclosure by way of a front door, means for drying and dewrinkling said clothes in the afore-mentioned enclosure, and further including an ironing board unit. This ironing board unit is a folding one and is mounted on the inside face of the cabinet door.

[0010] In this way, once the cabinet drying and dewrinkling program is concluded, the user has the possibility of opening said cabinet, setting up the ironing board unit housed on the inside face of the cabinet door and ironing those garments that are considered to need pressing.

[0011] This means that the user of this invention:

- Versus the user of an ironing board with a collapsible underframe, has the advantage of not having to take the ironing board unit out of the place where it is stored and set it up in a suitable place, nor of having to take it back to its place again once ironing is completed.
- Versus the user of a fold-down ironing board in respect of a fixed support, has the advantage of not having to take the clothes from the drying and dewrinkling cabinet to the place where the folding board unit is located.

[0012] Furthermore, since the invention makes it possible for the ironing board not to have to be kept somewhere else in the house (it is inside the drying and dewrinkling cabinet), it also affords a saving in time and effort as well as saving space.

[0013] Apart from the ironing board unit, the rest of the equipment needed for ironing, such as the actual iron itself, will also be kept in the drying and dewrinkling cabinet.

[0014] Another object of the invention is to provide the cabinet covered by the invention with a fold-down ironing board that improves upon some of the main features of the prior art ironing boards.

[0015] Said fold-down ironing board unit comprises a board, a fixed leg hingedly attached to the under side of said board and anchoring means attached to the inside of the cabinet door. When folded down, the board rests on the leg and on the cabinet door anchoring means, so that a position of high stability is achieved.

[0016] Said anchoring means include two elongated vertical supports and two bearing stops attached to said supports. At one end the board has a shaft and the supports have longitudinal guide slots wherein the ends of said shaft are housed.

[0017] The main advantages of the invention are as follows:

- The stops fixed to the vertical supports act as bearing points for the board when the ironing board unit is folded down, while the same stops also prevent the board from swinging down when it is stowed away. This saves having to use additional board anchoring means.
- When the ironing board unit is stowed away, the actual board cannot be lowered unless the user raises it above said stops in order to fold it down. This prevents the board from accidentally swinging down, which endows the unit with great safety.
- The solution is sturdy but at the same time simple, as, when the ironing board unit is folded down, the board itself is secured on both sides, which stops it from lurching, while the stops serve as bearing points, which makes the ironing board highly stable.
- Since the stops may be positioned at different heights on the vertical supports, the ironing board unit is adjustable for height with the special feature of it not being necessary for the user to adjust it every time it is used. Once these stops are fixed at the desired height, the user then has the height of the board set for subsequent occasions.

DESCRIPTION OF THE DRAWINGS

[0018]

FIG. 1 is a perspective view of an embodiment of the cabinet of the invention with the ironing board folded down.

FIG. 2 is a perspective view of the embodiment of FIG. 1 with the ironing board folded away.

FIG. 3 is a front view of the inside of the cabinet door of the embodiment of FIG. 1, with the ironing board folded away.

FIG. 4 is a cross section according to the IV-IV section line of FIG. 3.

FIG. 5 is a cross section according to the V-V section line of FIG. 3.

DETAILED DISCLOSURE OF AN EMBODIMENT OF THE INVENTION

[0019] With reference to FIG. 1, cabinet 1 of the invention comprises:

- a main enclosure 2 for housing clothes.
- a front door 3 offering access to said main enclosure 2.
- means 4 for drying and dewrinkling said clothes in the enclosure 2.
- control means 5 for regulating said control means 4,
- a fold-down ironing board unit 6 placed on the inner

side of the door 3.

[0020] Cabinet 1 will also include the necessary equipment (not shown in the figures) for carrying out conventional ironing, such as the actual iron itself.

[0021] The ironing board unit 6, which is shown in its working position in FIG. 1, comprises a board 7 and a fixed leg 8, which is hingedly attached to the under side of said board 7. As may be seen in the afore-mentioned FIG. 1, once the door 3 is open and the ironing board unit 6 is folded down, said board 7 rests on the leg 8 and on the anchoring means attached to the inside of said door 3.

[0022] The anchoring means include two elongated vertical supports 9 and 9' attached to the inside of the door 3 and two stops 10 and 10' attached to said support 9 and 9'. The stops 10 and 10' act as bearing points for the board 7 when the ironing board unit 6 is folded down.

[0023] As shown in FIG. 2, said stops 10 and 10' act as anchoring means for the board 7 from swinging down when the ironing board unit 6 is folded away.

[0024] With reference to FIG. 3, the board 7 has a shaft at one end and the supports 9 and 9' have longitudinal guide slots 11 and 11' facing each other. The shaft 14 of the board 7 is housed in said guide slots 11 and 11'. The leg 8, which is hingedly attached to the board 7 and moves according to the axis 8a, is secured to the board 7 when the ironing board unit 6 is folded away by means of a gripping device 7a with which said board 7 is provided.

[0025] Stops 10 and 10' each have:

- a main body (12 and 12') encircling the respective support (9 and 9') so that said stops 10 and 10' can slide longitudinally along said supports 9 and 9' in order to be able to regulate the height at which it is desired to set said stops 10 and 10';
- a shoulder (13 and 13') attached to said main body (12 and 12'), the shoulders 13 and 13' of both stops 10 and 10' being opposite each other; and
- fastening means (not shown in FIG. 3) to fix said stops 10 and 10' at the desired height setting.

[0026] Obviously, the length of the leg 8 is adjustable so that it can be made to match the height at which the stops 10 and 10' are placed.

[0027] For fixing stops 10 and 10', supports 9 and 9' have a series of longitudinally aligned holes. With reference to FIG. 4, the stop 10 fixing means (just as the stop 10' fixing means) include a pin 15 housed in the body 12 which is inserted at the user's discretion in the hole at the height at which it is desired to fit stop 10.

[0028] In this embodiment a spring 16 with a washer 17 is added to the pin 15 so that said pin 15 slips automatically into the hole which it is facing if the user releases it. The pin 15 has a head 18 which makes it easier for the user to take hold of said pin 15.

[0029] With reference to FIG. 5, in the embodiment

described the shaft 14 is an integral part of the board 7.

(15,15') housed in the body (12,12'), which is inserted in the hole at the height at which it is desired to set the stops (10,10').

Claims

1. A clothes drying, dewrinkling and ironing cabinet which comprises a main enclosure (2) for housing clothes, access to said main enclosure (2) being by way of a front door (3), means (4) for drying and dewrinkling the clothes in said enclosure (2) and control means (5) for regulating said means (4), **characterised in that** it also includes a folding ironing board unit (6) mounted on the inside of the door (3) so as to make it possible for said cabinet (1) to include all the equipment needed for the drying, dewrinkling and ironing process to be carried out.
2. A cabinet according to claim 1, **characterised in that** the ironing board unit (6) comprises a board (7), a fixed leg (8) hingedly attached to the under side of said board (7), and anchoring means (9,9', 10,10') attached to the inside of said door (3), said board (7) being supported, once the door (3) is open and the ironing board unit (6) folded down, on the leg (8) and on the anchoring means (9,9',10,10').
3. A cabinet according to claim 2, **characterised in that** the anchoring means (9,9',10,10') include elongated vertical supports (9,9') attached to the inside of the door (3) and two stops (10,10') attached to said supports (9,9'), while at one end the board (7) has a shaft (14), the supports (9,9') having longitudinal guide slots facing each other, the ends of the shaft (14) of the board (7) being housed in said guide slots (11, 11') and the stops (10,10') acting as a support for the board (7) when the ironing board unit (6) is folded down and as holding means to stop the board (7) from swinging down when the ironing board unit (6) is stowed away.
4. A cabinet according to claim 3, **characterised in that** each stop (10, 10') has:
 - a main body (12,12') encircling its respective support (9,9') so that said stops (10,10') can slide longitudinally along said supports (9,9') in order to be able to regulate the height at which it is desired to set said stops (10,10');
 - a shoulder (13,13') linked to said body (12,12'), the shoulders (13,13') of both stops (10,10') being opposite each other; and
 - fastening means for fixing said stops (10,10') at the height at which it is desired to set them, the length of the leg (8) also being adjustable.
5. A cabinet according to claim 4, **characterised in that** the supports (9,9') have a set of longitudinally aligned holes and the fastening means include a pin

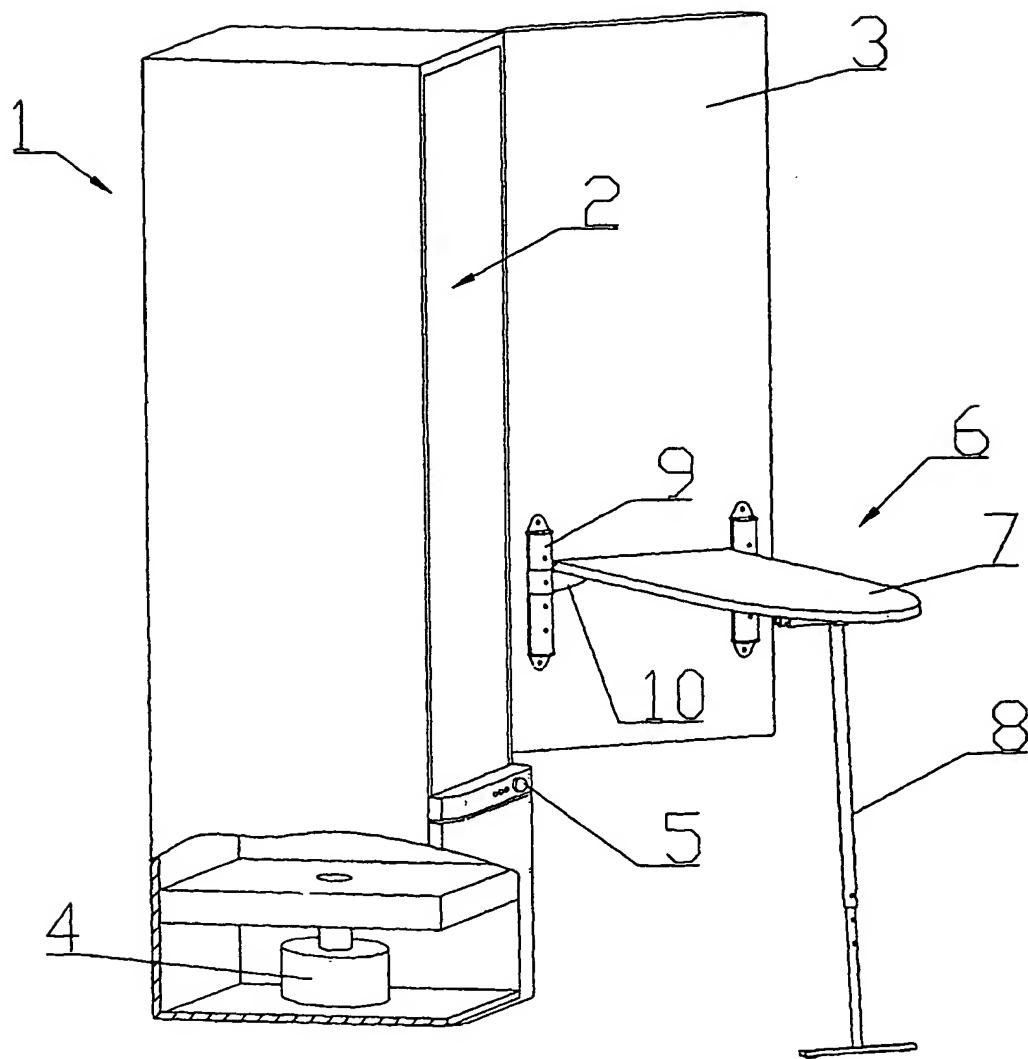


Fig. 1

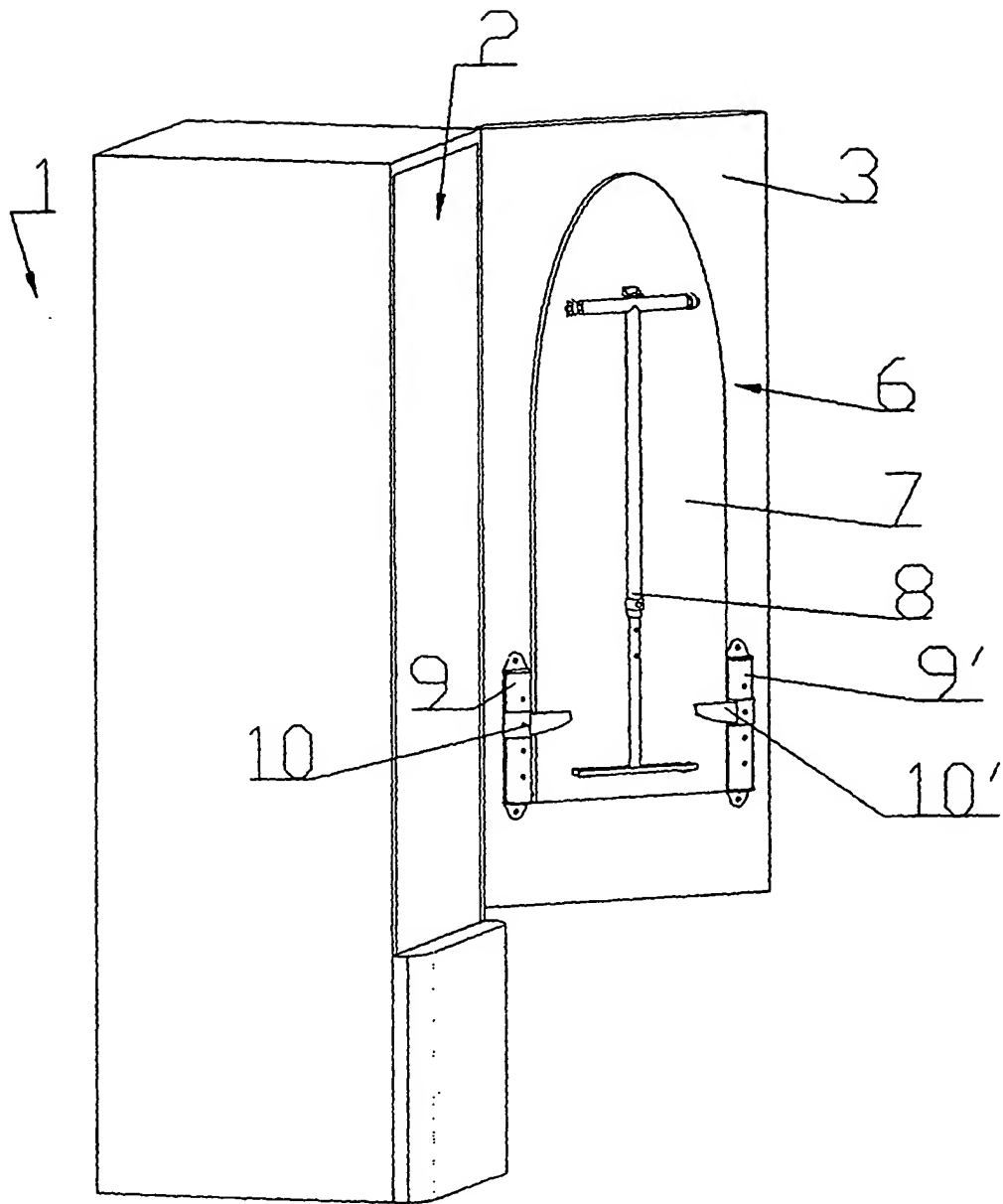


Fig. 2

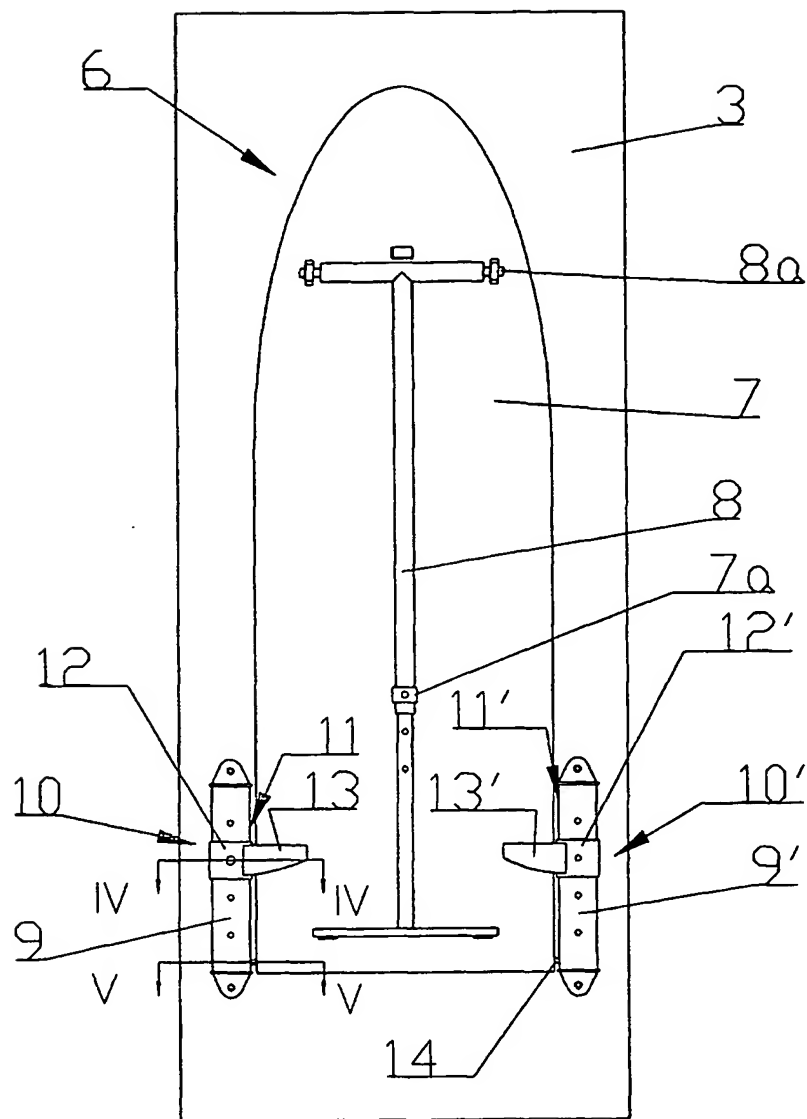


Fig. 3

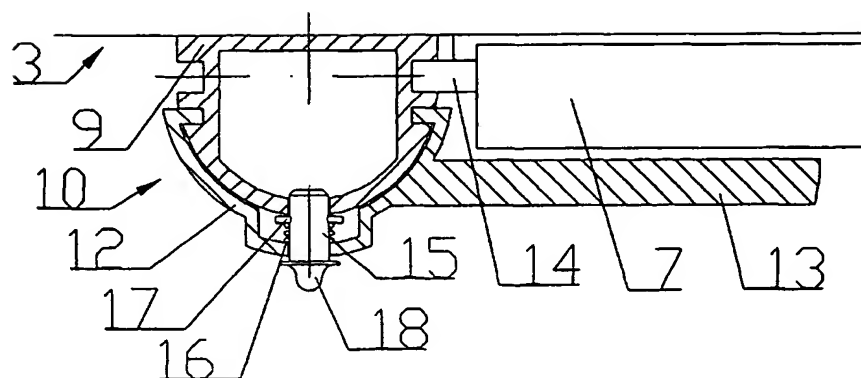


Fig. 4

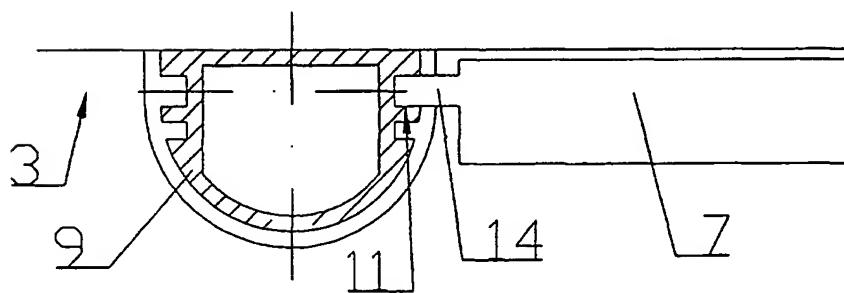


Fig. 5

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